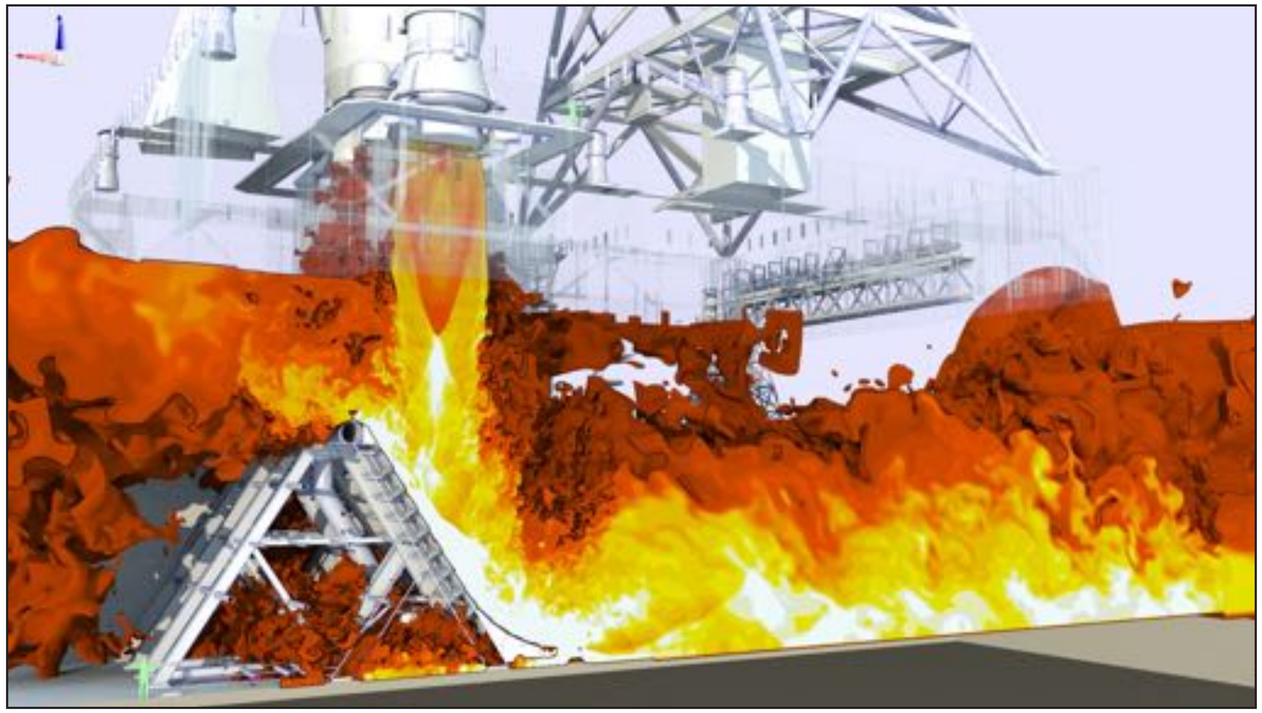

Image from a simulation of launch ignition for NASA's next-generation Space Launch System. Colors indicate temperature, where white is hotter and brown is cooler. The plume is contoured based on the air-mass fraction (that is, the fraction by mass of air vs. gas plume species). Small green people are shown for scale. *Michael Barad, Tim Sandstrom, NASA/Ames*

Snapshot from a simulation of launch ignition for NASA's next-generation Space Launch System. Colors indicate temperature, where white is hotter and black is cooler. The image plane slices through the centerline of one of the two solid rocket boosters. *Michael Barad, Tim Sandstrom, NASA/Ames*

National Aeronautics and
Space Administration

High-Resolution Launch Environment Simulations

Kennedy Space Center (KSC) recently redesigned and rebuilt the main flame deflector (MFD) at Launch Complex 39B. The MFD design team's innovative new deflector design uses easily replaceable and durable shingled steel plates, but gaps between the plates result in small flow paths to the back side of the MFD, posing launch safety and maintenance concerns. Computational fluid dynamics experts at NASA Ames were called in to apply high-resolution methods to help identify thermal, pressure, and flow environments on and around the geometrically complex MFD.

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